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TOWN MEETING



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"WHY THE FUROR OVER FLUORIDATION?"

Speakers:

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EARL UBELL

Moderator:

JAMES F. MURRAY, JR.



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BULLETIN OF AMERICA'S TOWN MEETING OF THE AIR

Broadcast Sundays, ABC Network, 8 to 9 p.m., Eastern Time



"WHY THE FUROR OVER FLUORIDATION?"

ANNOUNCER: Tonight's TOWN MEETING is a feature of the General Session of The Medical Society of New Jersey, holding its 190th annual meeting at Haddon Hall in Atlantic City.

Founded in 1766, while New Jersey was still a colony, The Medical Society of New Jersey is the oldest of its kind in the western hemisphere. Its founders -- who described themselves as "practitioners in physic and surgery in eastern New Jersey" -- associated themselves for the advancement of their profession and the promotion of public good.

Since 1766, the Society has been faithful to this twofold dedication. Fourteen members signed the old instrument of association. Today its membership totals six thousand. Thirteen hundred physicians are gathered here for scientific sessions, business meetings and social events.

Tonight the new president of The Medical Society of New Jersey, Dr. Lewis C. Fritts of Somerville, has delivered his inaugural address. Our TOWN MEETING will constitute the second portion of this evening's program.

Now to serve as moderator of our discussion, here is James F. Murray, Jr., attorney, author and lecturer. Mr. Murray!

MR. MURRAY: One of the most perplexing modern controversies raging in the United States in the field of public health is the question of whether or not to fluoridate the water supply of our cities, in an effort to prevent or to reduce tooth decay. This is an issue which directly involves millions of Americans and its ramifications include delicate points of finance, religious freedom, minority rights and constitutional law. Perhaps the only unchallenged fact of the entire debate is the enormous extent and damage of tooth decay among our citizens in every walk of life. Dental decay afflicts more than 80% of our youngsters, even before they begin their first grade grammar school. It accounts for a staggering proportion of this nation's yearly dental bill of more than \$100 million.

Would fluoridation of our drinking water effectively eliminate this vast hazard to our health? The experts are sharply divided and the differences of opinion become more intense as city after city comes face to face with the problem.

AMERICA'S TOWN MEETING now brings you two nationally known authorities to present both sides of the question: "WHY THE FUROR OVER FLUORIDATION?"

For the affirmative, the distinguished Science Editor of the "New York Herald Tribune," Mr. Earl Ubell. Mr. Ubell!

MR. UABELL: I will do the best I can to display the favorable as well as the derogatory evidence that has come before me as a science editor on the subject of fluoridation. And I think one should say at the outset that not everything is known about this measure that reduces dental decay, but enough is known to advocate it. In fact, 1300 cities have adopted the measure.

Few scientists would assert that the lack of fluoride in the diet is the sole cause of dental decay. It is well known that a diet with too much sugar contributes to dental decay. Everything short of a Volstead Act has been tried to have the public cut down on sweets.

Heredity is important too and recent experiments at Columbia University indicate that lack of chewable hard foods in civilized diets fail to give the teeth sufficient compression to help them maintain metabolism.

So if fluoride does anything, it acts as a contributing factor to the structure of teeth. But how it acts to prevent decay is still somewhat of a mystery. I might add that this is not the first substance whose benefits have been used prior to its full comprehension of action. Black and McKay published the first major report in 1916 which tied the water supply to teeth. They discovered that in certain areas the teeth mottled, that is, they had dark brown stains which were quite disfiguring.

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By 1931, however, enough about the chemistry of fluorine was known to pin the mottling on the presence of small but significant amounts of fluoride in the water supply. Bauxite, Arkansas, for example, had 13 to 14 parts of fluoride in every million parts of water. It was only 10 years later that H. Trendly Dean of the Public Health Service substantiated an early impression -- held even in the last century, incidentally -- that fluoride reduced tooth decay. He examined children in naturally fluoridated areas and found that if the fluoride was at a level of about 1 part per million, it reduced tooth decay by up to 60% compared to non-fluoride areas.

At the 1 part per million level, there were no disfiguring brown stains, only occasional white flects that could be detected only under a special light used by an expert. A controlled experiment was then suggested. Pairs of towns were selected; one was fluoridated and the other not. In all, there were four such experiments, the best known at Kingston and Newburgh, New York. In each case, the reduction of dental decay, after the first few years, was comparable and up to 60% or 70% compared to a control city. In older age groups the reduction was less, presumably because their teeth had not had the benefit of fluoride at an early age when it is incorporated into the teeth. In each case the degree of mottling was less than that which could have been detected by the ordinary observer.

Another study involving Colorado Springs with 2.6 parts of fluoride per million in the water and Boulder City with practically no fluoride shows that these benefits continue up to the age of at least 45, the last age covered by the investigation. All these experiments, of course, suffer from the extreme difficulty of measuring tooth decay uniformly and this is the greatest criticism that could be made of them. However, in New York extensive precautions were taken to exclude such errors, including random x-ray pictures of the teeth.

Another question might be: Is fluoridation safe for children and adults? Actually, one should ask: Is it safe enough -- because nobody can prove that anything is 100% safe. If the most delicate measuring instruments, including statistics and laboratory techniques, are unable to disclose any harm, I believe one is able to proceed on the assumption that it is safe enough.

Schlesinger and his associates carried out extensive medical and laboratory measurements on children in the Newburgh-Kingston study and found no differences in growth, weight or other physical features. The Public Health Service examined in detail more than 100 long-time drinkers of fluoridated water in Bartlett, Texas, which has 8 parts per million of fluoride in the water; and Cameron, Texas, with less than 1 part per million -- and found no abnormalities traceable to the fluoride except a slight increase in the density of the bones which had no clinical significance.

But these are admittedly small numbers. The Public Health Service has, in order to remedy this, selected in a random way 16 fluoride cities and 16 non-fluoride cities and compared the death rate involved. There were more than 2 million people covered by this investigation. They found no statistically significant difference in the death rate at all ages of five major causes of death; heart, kidney, cancer, liver and the brain. There was a greater overall death rate in the fluoride cities, but this was not statistically significant. I believe that although this number is slight, additional statistical studies of this same nature should be carried out to prove that the difference is a true statistical variation to alleviate the fears of those who are super critical.

Laboratory and clinical studies on animals indicate that no abnormalities appear at the proposed levels of fluoride, but only at much higher levels of ingestion. Studies of kidney function in the aged and in damaged animals show no lowering of the ability to excrete excess fluoride.

There have been scattered reports of clinical cases of fluoride poisoning, particularly by Dr. George L. Waldbott of Detroit, who has 12 of his own cases and 50 more he collected by questionnaire. Dr. Waldbott has not proved to the satisfaction of his local medical society that the cases were indeed caused by fluoride in the water supply, or by other conditions, particularly those of a psychosomatic nature.

Fluoridation is probably cheaper by a factor of ten than any other way of getting minute amounts of fluoride to growing children.

In closing I might add that not everybody opposed to fluoridation is a crackpot or a quack. Some are quite sincere. One is a good friend of mine. But they, individually or collectively, have not produced on their own any evidence -- and I have to repeat that word, "evidence" -- that fluoride is not efficacious or it is harmful. Their objections are mainly theoretical and, if I may say so, to paraphrase an old Chinese proverb, one good experiment is worth 1,000 opinions.

MR. MURRAY: Thank you, Mr. Ubell. Now our second guest on TOWN MEETING, for a sharply divergent opinion is Melvin Klerer, doctor of philosophy and physicist; member of the teaching staff of City College of New York; secretary of the Interprofessional Conference on Fluoridation; and author of "The Fluoridation Experiment," which appeared in "Contemporary Issues," an international periodical. Dr. Klerer!

DR. KLERER: Since this is such a controversial subject, let me say at the outset that I speak as an individual and not as a representative of any particular organization or institution.

The continuing controversy, for some years now, over the merits of fluoridation as a public health measure, has been marked by much propaganda, little data and a lack of adequate scientific discussion. The methods used to foster its adoption, the reluctance of responsible government scientists and officials to engage in public discussion of this issue, and the various political pressures exerted, lead to the unavoidable conclusion that this scheme has left the realm of purely scientific controversy. It has been, in fact, transformed into a political issue, with all the encumberances of political interest and motivation. The temper of this controversy may perhaps be gauged by noting that a prominent member of the New York City Board of Health has recently been quoted as characterizing the opponents to fluoridation as "fuzzy-minded nitwits" who have been swept "off their feet by emotional ignorance." In turn, the very little coverage given by the press to the general opposition viewpoint has made crude emphasis of the charge that fluoride is a deadly poison, not fit for human consumption. Oversimplified and inadequate as these statements are, as representations of both sides of the controversy, I have no hesitation in declaring that the weight of truth lies with the latter charge and that the serious toxic consequences of fluoridation will, in the passing years, become evident on a mass scale.

The main premise of the fluoridation hypothesis is that the rate of dental decay in children will be substantially decreased if they take in fluorides at a level of 1 to 1.5 parts per million from their drinking water. But the published data does not support this conclusion. Rather, the reports, as inadequate as they are, imply that the claim of dental benefits is a spurious contention based on the inadequate studies, facetious and self-contradictory data, and the private speculations of a handful of individuals. Such studies have not been corroborated by disinterested researchers and have, in fact, been contradicted. Concomitant to the claim of dental benefit for children is the equally absurd contention that the rate of dental decay in adults can be expected to decrease if they are exposed to fluoridated water at the recommended levels. Since no proper investigations have been made on adults exposed to this level of fluoride, this constitutes mere wishful thinking. Quite the reverse, the few studies made on adults, in communities with amounts of indigenous fluorides slightly above the recommended level, show that the adult dentition is severely damaged by dental fluorosis.

Recently the claim has been made that children exposed to the recommended level of water borne fluorides will not develop the initial symptom of generalized fluorine poisoning; mottled teeth. Mottled teeth are characterized by dull chalk-white irregular patches or striations and loss of normal translucency so that they appear unnatural. In later life, they may develop a permanent discoloration varying from dark brown, almost black, to yellow. In severe cases the enamel may be pitted and corroded, making it difficult to fill decayed teeth due to the ensuing structural weakness and fragility. It has been contended by the proponents of fluoridation that objectionable or disfiguring mottling will not occur with fluoridation. In fact, it has been claimed that teeth exhibiting the milder forms of fluorosis are more beautiful than normal teeth. This claim is controverted by the mass of published data which show that a very large proportion of the

children undergoing fluoridation can be expected and do exhibit forms of dental fluorosis which are highly undesirable -- frequently the appropriate word is ugly. This condition will worsen as the children advance into adulthood. In particular, those children exposed to poor nutrition can expect to suffer more severely from this condition in addition to other more detrimental physiological effects.

Equally ludicrous are the contentions that all fluoride compounds in food and water are physiologically identical and, therefore, any kind of soluble fluoride compound can be dumped into the water supply. Not quite so humorous in its effects is the supporting argument that none, or very little of these fluorides, will be retained in the body -- the major argument against possible toxic consequences. Thus, together with claims that fluoridation does not harbor any medical risks, all the supposed benefits and assurances about fluoridation must be regarded as in error, founded either on mistaken inferences or in contradiction to the actual studies available.

MR. MURRAY: Thank you very much, Dr. Klerer. There you see, ladies and gentlemen, two sharply contradictory viewpoints. I think perhaps we might immediately plunge into our basic discussion this evening by trying to relate these two opening statements and, Mr. Ubell, you have been listening to what has just been said by Dr. Klerer and I wonder if you would care to comment upon his opening remarks, particularly with respect to the attack which he made upon the efficacy of fluoridation and the safety of fluoridation, and the contrast which he drew between what he described as "lack of adequate scientific discussion," and "uncorroborated and contradictory studies," so-called. You must have some viewpoint on that.

MR. UBELL: Dr. Klerer said a mouthful and I would like to say, first of all, that I was sorry to hear him use such words as "absurd" and "ludicrous" in describing these very good experiments which I was discussing. The men who did them are of the highest order of scientific competency, they work for the United States Public Health Service, and they have given their lives to scientific research. I would like to comment on this very serious question of mottling. The word "mottling" has been bandied about to cover all ranges of dental disfigurement. This includes the very severe blackened teeth that were first seen by Black way back in 1916, to the almost imperceptible white flecks that can be detected only by pulverized light. To lump these two opposite types of dental change under one heading is the same thing as, I think, lumping a severe sunburn with a generalized suntan. The severe mottling occurs only at very high levels of fluorine injection -- somewhere between 3 parts per million and up. The kind of mottling which the people who have been conducting these experiments are talking about occur only at 1.5 parts per million and above, and below 1.5 parts per million only 10% of the children studied will show this almost imperceptible flecking. Perhaps you would like to discuss this mottling, Dr. Klerer, and then we can go on to the other points?

DR. KLERER: With great pleasure, Mr. Ubell. The conception of mottling is a very interesting question, and it is a very interesting question to settle, but first of all let me make an aside. I don't mean to introduce personalities here. My comments are on the papers published. As far as mottling is concerned, I'm willing to make my statement a little sharper. I not only think it is absurd, I think it is scandalous -- absolutely scandalous -- that the people of this country should be subjected to a scheme which will cause such harmful damage. Exactly what harmful damage? Let me illustrate. For instance, the Public Health Service in the late '30's and the early '40's was concerned with the problem of mottling. This arose from certain concentrations of fluoride in the water, supposedly naturally contained in certain areas. The Public Health Service sent down investigators into these areas. They made a survey and reported the statistics in this mottling. May I quote some statistics, and these are from the Public Health Service, principally from Dr. Henry Trendly Dean, one of the men who is recognized as one of the principal proponents of fluoridation. These statistics were published in 1942 and republished in 1946, and they were published in two volumes put out by the American Association for the Advancement of Science. The main point here is that the Public Health Service is ignoring, absolutely ignoring its own work. To

get down to what is involved, may I cite, for instance, the city of Aurora, Illinois. Aurora, Illinois is a city used as a model city. It is a city where it is claimed that there is an optimum reduction in dental decay. Now, Aurora, Illinois has a concentration of 1.2 parts per million fluoride supposedly naturally there in the water supply. However, when the Public Health Service went down to Aurora, they found that in the Aurora children there, the young children, aged 12 to 14 years of age, 31.8% exhibit what is called questionable mottling. That is somewhat of a misnomer since questionable mottling is readily observable. It usually consists of white spots or striations on the front teeth. They also found that 13.9%, that is, nearly 14% of the children exhibited what is called very mild mottling, which I also consider to be an objectionable condition. 1.1% exhibited mild mottling and mild mottling, there is no question, is quite objectionable. I just want to give two more figures. In Joliet, Illinois where the fluoride content is 1.3 parts per million, there were 34.2% questionably fluorosed children, 22.2% very mild -- more than 1/5 -- and 3.1% mild. There were also a few thousand children with moderate mottling. Moderate mottling, and I am not exaggerating, is when the teeth begin to fall out.

MR. MURRAY: This week's winner of the American Peoples Encyclopedia is Mrs. Leroy W. Cook of Boulder, Colorado, who submitted this question: "Isn't there a more efficient and practical method of administering fluorine to children, for the few years they need it, than putting it into water used for all general purposes?" Mr. Ubell, would you care to answer first?

MR. UBELL: In my opinion, contrary to what I said about opinions before, there is no more efficient and practical method of doing this job. Is there another method of doing this? Yes, there are other methods, that is, distribution of tablets, putting it in milk and selling bottled water. In each case, these methods are either more expensive than using it in the general water supply, or are impractical in the sense that they cannot be controlled to the sense that the water supply can.

MR. MURRAY: Then, generally, your response would be no. Dr. Klerer?

DR. KLERER: If I were forced to imbibe fluoride, I think I would find the most welcome form of taking it would be in a good glass of French cognac. You see, in my opinion, fluoride, whether given in water or in pills or in tooth paste or in milk or what you wish, are all equally dangerous and this is not a speculation. I draw my conclusions from the very data which the Public Health Service had gathered ten years ago, before the fluoridation craze hit them, and which they completely ignore now.

MR. MURRAY: Gentlemen, let us return to the debate which was raging before we asked our listener question. Mr. Ubell, you heard the indictment launched a moment ago, especially with respect to the Aurora and Joliet experiments. What is your response to that?

MR. UBELL: I am going to read from the Public Health report, which was published in the American Association for Advancement of Science volume. This is the latest one, which was published in 1954. This is the classification of each tooth, according to the following scale on mottling: Grade 1, normal -- 2, questionable -- 3, very mild -- 4, mild -- 5, moderate -- 6, severe. In assigning a child to a category, they have arbitrarily adopted the simple rule that the presence of two or more teeth characterized by a higher grade, places the child in that category. For instance, if most of the teeth of a certain child were normal or questionable, but two teeth were classed as very mild, this child would be placed in the category of very mild for statistical computations. And since most of the children to whom Dr. Klerer referred were either in the questionable category, that is, that the scientists couldn't make up their mind whether the tooth was mottled or not, I would say that the degree of mottling was indeed slight, so slight that the average individual looking at a mouth could not detect it.

MR. MURRAY: I wonder if we might move on to another aspect which I know the average layman is interested in, and that is the efficiency of this proposed method in terms of preventing tooth decay and then, if we can't answer that, go on to some of the more general safety factors with respect to the charges that have been made, that

fluoridation damages the kidneys, that it creates tendencies to cancer, etc. How about the efficiency in prevention or reducing tooth decay.

MR. UBELL: I would like to, if I may, summarize the findings of the four controlled experiments which were undertaken. The first experiment was in Newburgh, New York and the percent of reduction in decay after 8 years -- this was just after 8 years of fluoridation -- was up to 66% in the 9 year old group. In Grand Rapids, Michigan, after 8 years in the 9 year old group, the percent reduction was up to 48%. In Bradford, Ontario, in the 9 year old group, it was up to 46%. In Evanston, Illinois, in the 8 year old group, it was up to 35%....

DR. KLERER: Were there any bad results, Mr. Ubell?

MR. UBELL: ...reduction in tooth decay compared to a control city. In each case, children of younger ages were even more greatly protected against tooth decay.

DR. KLERER: Mr. Ubell, were there any bad results in this very happy picture?

MR. UBELL: Bad results in what sense?

DR. KLERER: Well, I find, Sir, that if I were just to read the press, all I would see emphasized would be one or two studies which seem to emphasize the apparent, and I underline the word "apparent," reduction in decay. However, with particular regard to the reports that have come out in Newburgh, may I point out that there was an independent study done by the State Education Department of New York. These people went down to Newburgh and Kingston and examined the children there. They found that the results were in complete contradiction to the official publicized study. They found, for instance, that the children in Newburgh, the fluoridated children, had a decay rate which was 50% higher than Kingston, the control city. Of course, due to the varying omissions and apparently different methods of examination, the two studies were not comparable. But, they also examined the children as far as their total health conditions were concerned. This was done by school physicians in each city. They found also -- it's rather amazing -- that in Newburgh, the fluoridated city, the total health defect rate was 50% higher than in Kingston. What is more startling, however, and what cannot be qualified, is the amazing fact that the proportionate children under dental treatment in Newburgh is 40% higher than Kingston. It would seem from this that Newburgh children, the fluoridated children, require more dental care. Now, this is not the only incident. For instance, there was a study done in Ottawa, Kansas and the rate of decay doubled after 3 years. Nobody hears too much about that. The reported results from Evanston, Illinois was very unhappy for some groups. The reported results from Charlotte, North Carolina were also very unhappy for some groups, but nobody is told about that.

MR. MURRAY: Mr. Ubell, I know you are very anxious to reply but might I suggest that since you are in direct clash now with respect to cities that have been under controlled experimentation, if in your answer you would include additional enlightenment with respect to possible statistics on internal harm that may or may not have been proven as a result of these fluoridation experiments.

MR. UBELL: In my opening presentation I referred to the extensive medical studies which were done by Schlesinger and his group on the children who were engaged in the Newburgh and Kingston studies and they found no change in growth rate, height differentials or any of the other characteristics which might have been expected to appear. Now with respect to the study -- I won't even characterize it by a study -- you will find that the report to which Dr. Klerer refers is rather a letter, correct me if I am wrong, written by a Dr. Forst, who is head of pupil health in the New York State Department of Education. This report does not have the usual scientific control that one would like to see in a study of this kind. It refers only to dental defects, not separating, for example, decay from

DR. KLERER: There was a published report put out, a mimeographed report put out by the State Education

MR. UBELL: In what scientific journal?

DR. KLERER: It was put out by the State Education Department. Do you challenge...

MR. UBELL: Yes, I challenge the facts and figures as being a scientific report.

DR. KLERER: Do you challenge the numbers put out by the State Education Department?

MR. UBELL: That is correct. They are uninterpretable as scientific...

DR. KLERER: Are you saying that the State Education Department went down to Newburgh and counted the number of children under dental care in Newburgh, and counted the number of children under dental care in Kingston -- that their figures are not true?

MR. UBELL: I'm referring to your first statement in which you say that the rate of dental decay is higher in the fluoridated city than in the unfluoridated city. If you will examine these figures, as I have, you will find that the examinations in Newburgh were done by a dental technician, using a probe and a mirror, who is trained to find dental decay. Those in Kingston were done by a simple oral examination of the mouth by the local school physician.

DR. KLERER: Mr. Ubell, let's be fair. I'm not quibbling about a percentage here and there. I'm talking a study which is in blatant contradiction....

MR. UBELL: It is not a study, it was never characterized as a study....

MR. MURRAY: Gentlemen, I wonder if we could get away from the position of the seven blind men examining the elephant for a moment. I'd like to keep you in conflict on a little larger scale, if I may. I've been informed, for example, that among the nation's largest cities already employing fluoridation are Philadelphia, Washington, St. Louis, San Francisco, Pittsburgh, Milwaukee, Providence and Miami, among others. Now, do you have additional facts you can give us about the opinion of the professional responsible organizations of medical and dental men who, after all, the public looks to for guidance and advice in these communities? Has there been any production by them of statistics or results that could guide us in this problem?

DR. KLERER: Mr. Murray, it is rather unfortunate, as I pointed out in my introductory statement, that fluoridation has left the realm of purely scientific controversy. In fact, it has become a political issue where political pressures have been exerted. For instance, it is not an accident that there has been a cleverly conceived and executed publicity campaign in the press which only emphasizes those few studies which show apparent benefits and completely ignore the mass of data which shows harm.

MR. UBELL: That is not true.

DR. KLERER: May I point out further that it is not accidental that there has been no adequate scientific discussion on this issue. It is not accidental, for instance, that the Public Health Service has held secret conferences on how to promote fluoridation and the minutes withheld from the public. It is not accidental that in a recent hearing before the City Council of New York, that the relevant and concerned administrative bodies were not present to argue the case. Of course, you can make all sorts of excuses for this, but it is quite clear that political pressure has been brought to bear on this issue to lift it out of the realm of purely scientific controversy and to serve purely political purposes.

MR. UBELL: That is a slur and a slander on the United States Public Health Service, which is one of the outstanding research organizations in the United States. I, particularly, do not see that any purpose is served by slandering such a great institution, and I believe that you will find, if you examine in detail, that the major medical and health organizations in this country have endorsed fluoridation either in principle or in fact. This includes the American Medical Association, the American Public Health Association, the American Dental Health Association, and I could cite many, many more. I would like to also point out, if I may, if we can just for the moment go back to the Newburgh-Kingston study on the dental decay reduction, you will find, those of you who have an opportunity to read it and send for it to the Department of Health of New York State, one of the most carefully documented studies on the statistics of dental decay that has ever been done, including the randomization of x-ray pictures to eliminate observer bias. This is really a careful study and how Dr. Klerer

can compare this careful study to a mimeographed sheet of paper, handed out by the New York State Department of Education in response to a simple question which tells nothing of control, nothing of randomization, nothing of the steps taken to make it...

DR. KLERER: Mr. Ubell, you're not answering the question. You're merely taking up time. Now, what about the other studies?

MR. MURRAY: Gentlemen, it is time to turn to our audience for questions and I accept the first question from the gentleman on my left.

QUESTIONER: Mr. Ubell, I have heard nothing of the possibility of the use of fluorides in vitamin preparations or in common table salt, as iodides are now added. Can you comment?

MR. UBELL: Yes, I can. The Board of Health of New York City made a study of the various methods in which fluorides could be distributed. They found, as a result of their economic study, that it would cost approximately ten times as much to distribute fluoride in tablet form or to add it to any other material now available, than it would be to fluoridate the public water supply. In addition, they point out that in distributing fluoride in this way, they do not have the specific control that they might have over the distribution of the material as they would in the public water supply.

QUESTIONER: Dr. Klerer, why do lay people doubt the evidence of professional and public health authorities.

DR. KLERER: For a very good reason, Sir. Because, in fact, there exists a substantial body of data which contradicts the claim. Let me just return to a point I made before; the question where the mild forms of fluorosis are objectionable. That happens to be a fact which everyone can determine for themselves.

MR. UBELL: I challenge that.

DR. KLERER: It is unfortunate this program is not televised, otherwise I could show the audience the pictures of mottling, but the next best thing is to give you two references. One, a book called "Fluorine and Dental Health," put out in 1942 by the American Association for the Advancement of Science. You'll find it in your local medical libraries. You go and look at these pictures and see if you can say that the milder forms of fluorosis are unobjectionable. One more point -- there is also a recent paper by E. R. Zimmerman. You'll find that in the Public Health Report for 1954. I think it's Volume 69, I'm not sure. He there describes questionable mottling, that is, he shows us sketches of this. He describes questionable mottling as consisting of two striations on the front teeth and numerous spots on the back teeth. Again, look at questionable mottling and see if you think this is unobjectionable. It is absolutely absurd to make the statement that these milder forms of mottling are desirable, or even unobjectionable. Absolutely fantastic and irresponsible.

QUESTIONER: Mr. Ubell, if fluoridation has any value, it seems to be only in the young. Therefore, why could it not be on a permissible basis in the milk -- and how that can be more expensive than putting fluorine in all waters as used for washing the car or watering the lawn, I cannot see.

MR. UBELL: Again, I can only refer you to the study made by the Board of Health of New York City, in which they went into the question of putting the material into milk. They discovered that testing the milk would cost the Board of Health in New York City \$250,000 a year alone. In addition, the placement of fluoridating equipment in the various milk companies would represent an additional expense. Furthermore, they feel, and it seems evident, that the milk companies would have to charge a one cent premium for this type of milk. Now, this might all be to the good, however, it is the feeling of the Board of Health that it would be cheaper, better, easier, to fluoridate the entire water supply.

DR. KLERER: Are you aware of the large difficulty, perhaps the insuperable difficulty of properly fluoridating the complex water system of New York, especially when we are told that 1 part per million is all right, but two parts per million is very dangerous. You live in New York and have you noted the fact that chlorine in the water in the upper part of New York City and the Bronx is at a much higher concentration than the lower part of the city. How will you regulate. How will you prevent a two parts per

million dose in the upper part of New York City, considered very dangerous, and a one part per million dose, supposedly not dangerous.

MR. UBELL: Two parts per million is not considered very dangerous. It is considered near the level at which one should be careful. However, I would say this -- that if the water supply engineers of New York City are unable to do what other water supply engineers in other cities are able to do, then possibly one should look for other engineers.

QUESTIONER: Mr. Ubell, may an adult expect any benefits from fluorides.

MR. UBELL: Again, I can only quote the study which was made relating to two cities, one was Boulder City, the other Colorado City.

DR. KLERER: What part per million concentration?

MR. UBELL: The Colorado City group had 2.6 parts per million fluoride in the water. Nevertheless, this study covered ages up to 45, as I pointed out in my opening presentation, and that the benefits were retained to a very large extent in the fluoridated.....

DR. KLERER: Mr. Ubell, has there been any other study on adults, any concentration particularly.....

MR. UBELL: Dr. Klerer, please let me finish the statement.

DR. KLERER: I'd like to bring out the relevant facts, Mr. Ubell.

MR. MURRAY: The first thing you know we're going to have to change the topic here to give you a chance to cool down a little bit. I might lighten it just a minute by reminding our audience that before our antagonist and protagonist came to the studio tonight, I asked them if in fairness to all concerned they would put their dentures on the table before they began this discussion. All right, Mr. Ubell.

MR. UBELL: Truthfully enough, as I pointed out in my presentation, this is one of the few studies that have been made along this line.

DR. KLERER: The only study.

MR. UBELL: I was endeavoring to answer the question as to whether adults could expect any benefits and, according to this study, they might expect some benefits. As I said in the beginning, not everything is known about fluoridation but I think a sufficient amount of material is available for one to make a decision to go ahead and fluoridate the water supply. This decision has been made by 1300 cities.

DR. KLERER: Based on one adult study, Mr. Ubell? How ridiculous can you get with this? On one study?

MR. UBELL: I can get very ridiculous.

DR. KLERER: Well you are, Sir.

MR. MURRAY: Before we engage in personalities, which Town Hall has never permitted in its entire twenty-one years on the air, might I not ask you each if you could relate your remarks, pro or con, perhaps to one or more of the larger cities which I enumerated before as already having experimented and having installed fluoridation. Has there been anything, for example, in Philadelphia or Miami or St. Louis which would shed light, rather than heat, upon our discussion?

MR. UBELL: I presume that you are speaking about the safety of the measure. There is nothing in the published literature at this moment concerning these cities, since they have only recently started fluoridating their water supply. However, as I pointed out in my presentation, some doctors have said that they have detected some cases of fluoride poisoning but, in my opinion and in the opinion of the local medical societies where these doctors operate, these cases are not substantiated as having been caused by fluoride poisoning.

MR. MURRAY: May we pass on to some more questions from our audience and perhaps these problems will occur again.

QUESTIONER: Mr. Ubell, it is presumed that one part per million in the water supply is going to be a benefit to children, provided they consume it. In other words, they've got to drink that water or else it is worthless. I've asked this question many times and never really have had an answer -- how much water of one part per million must a child consume daily to be of benefit to those teeth?

MR. UBELL: I can only point to a preliminary study which was made by Dr. Newman of Columbia University, in which he found great variation in drinking of water by children. However, on the basis of the statistical evidence in Newburgh and Kingston, it would indicate that those children who did not drink the water did not get the benefits. However, those who do are benefited and their dental decay is decreased by at least 60% compared to Kingston.

DR. KLERER: Depending on which report you believe, Mr. Ubell.

MR. UBELL: I believe the careful scientific, carefully worked out study of the State Department of Health.

MR. MURRAY: Regardless of the report on that, Gentlemen, I am sure the parents in the audience will agree that it's easier to get the children to drink the water than to bathe in it. Luckily, you don't have to immerse them in order to get the benefits. May we have the next question please.

QUESTIONER: Mr. Ubell, my ten year old daughter has a perfect set of teeth after the application of fluoride at the age of four. Wouldn't the direct application do away with the present controversy of putting fluoride into water?

MR. UBELL: As you probably know, this method has been advocated for, I believe, almost 20 years now. It seems to be a practical impossibility to get parents to take their children to dentists and have it done. It is also quite expensive since dentists do charge fees for each application.

QUESTIONER: Dr. Klerer, more than 200 scientific health and service organizations are for fluoridation. Can you name one single group of a national stature that is against fluoridation?

DR. KLERER: May I point out that this is one of the horrible things about this, that the leading medical and dental associations have lent their name to such a worthless, absolutely worthless, and unsubstantiated study without adequate investigation on their own, and a study which is contradicted by the data which is available to all. It would require the slightest effort to find out what is available.

MR. UBELL: Everybody is wrong. Mr. Klerer is right.

QUESTIONER: Dr. Klerer, you seem to imply, if I understand you correctly, that fluoridation may well have laid toxic effects of a serious nature on organs other than the teeth. Is there any evidence in areas which have a naturally very high fluoride content in their water of a higher instance of death or anything which may be recognized as chronic fluoride intoxication. I should think such towns as Bauxite, Arkansas, to which Mr. Ubell referred, with their naturally high fluoride content of 16 parts per million might be hotbeds of fluoride intoxication, if such is the case.

DR. KLERER: That's a very good question and I would like to point this out. As far as the mortality statistics mentioned previously, I may point out the use of mortality statistics in medical studies is again not very much proof of anything. For instance, in Newburgh, New York, there was, in a space of two years, from 1948 to 1950, a 60% increase in the deaths from cancer. I don't think that proves anything. However, there have been some studies done on high fluoride areas. For instance, the study in Bartlett, Texas, which was mentioned. But, those mentioned were only the conclusions from the published studies. There was an unpublished study which people don't hear about -- a study which was cited in the National Research Council document. In the unpublished study they found that in this high fluoride area, besides a high incidence of mottled enamel of teeth and an increased bone density in the spine and pelvis, there was also an abnormal amount of hypertrophic changes in the spine and pelvis, lenticular opacities of the eyes and blotching of the fingernails. The office of the unpublished study recommend further investigation. The office of the published study are some of the same men who must see the need for further investigation. I find this strange. You figure the answer.

MR. UBELL: If I may just answer that particular point, I can only cite the very extensive mortality studies which were done on the population of 2 million in 16 fluoridated and unfluoridated cities, in which it was shown that the major causes of death, cancer, heart disease and others, were not effected by the presence or absence of fluorides.

QUESTIONER: Mr. Ubell, how will fluoridation effect the commercial water companies?

MR. UBELL: In what way? You mean, will it cost them more money?

QUESTIONER: Yes, the cost.

MR. UBELL: I think it will cost them more money since they have to buy equipment and material.

QUESTIONER: Are they opposed to this?

MR. UBELL: I haven't heard any official announcement that the commercial water companies are opposed to this, except in the case that it might be more trouble to them.

QUESTIONER: The Homeopathic School of Medicine used to attribute great systemic effects to drugs which were in much less dosage than one part per million. Is there any evidence at all of any systemic effects, published reports of systemic effects, that we can read?

DR. KLERER: It is unfortunate that most of the work that has been done on fluorosis has been published in foreign journals. It is unfortunate that the American medical profession and the Public Health Service have not been interested in really following up these results. However, there have been reports from England, studies made in areas which are naturally fluoridated at the so-called recommended level. These studies showed bone defects in adults brought up in this area. There have also been studies made in India in areas at levels of fluoride which are regarded with little concern in the United States. Again, there were severe bone defects. There have been studies made in the United States on industrial exposure to fluoride at very high levels, that one, from these levels, can guarantee that men who work in steel plants, exposed to high temperatures who imbibe a great deal of water, or people suffering from certain specific diseases which require the drinking of large amounts of water -- these people will be taking in fluoride at those levels and it is guaranteed, absolutely guaranteed from this study that after 10 to 20 years of exposure, these people will show skeletal defects.

MR. UBELL: Of a non-disabling nature, I might add.

QUESTIONER: Dr. Klerer, fluorine is a halogen, so is chlorine. What, then, makes fluorine than chlorine, which is used in large amounts in nearly all water supplies

DR. KLERER: The only difference is this, Sir. Most of the chlorine evaporates before it gets to your mouth. In fact, most of it comes out from the water tap. Fluorine is an extremely toxic poison. It doesn't take very much to kill you. For instance, a large-sized pinch, about 1/4 of a teaspoon full, will prove fatal to you. Sodium fluoride is one of the most dangerous poisons known to man and it is still poisonous at one part per million. It has been demonstrated by the facts gathered by the Public Health Service, which they continue to ignore, that it is dangerous, that it does produce objectionable mottling of the teeth, that it does produce adverse effects, based on their own reports. If people just read the actual report and found out what they said, there would be no question that it is a very dangerous thing.

MR. UBELL: I would like to point out that the definition of toxicity is a very spurious one. A pinch, of course, of fluoride will kill. So will, for example, a pinch of diphtheria toxin. Few physicians would hesitate against administering diphtheria toxin, anti-toxin, to a patient, even though they know that in large amounts this material is dangerous.

QUESTIONER: Dr. Klerer, what studies have been made on animals as to the effects of fluorides on other organs of the body, the bones, the lungs, over long periods of time?

DR. KLERER: There have been a few studies done. They have not been long-term studies and they have been done at high levels. They all indicate that fluorides are extremely destructive to the soft tissues and particularly to the skeletal structure. Unfortunately, not enough work has been done on this subject.

MR. MURRAY: On that note, regretfully, ladies and gentlemen, we must bring to a close our question period. May I thank our distinguished speakers, for their informative and interesting discussion of this topic. Our thanks to the hosts for this TOWN MEETING, the Medical Society of New Jersey, and especially to Dr. Vincent P. Butler. Thanks also to the staff of Station WMID.